

## **Response and Comments of Fitchburg Gas and Electric Light Company d/b/a Unitil ("Unitil") concerning Navigant Consulting, Inc., December 9, 2005 Final Report Recommendations**

### **Navigant Recommendation 1.**

Prepare or update preventive maintenance plans, where needed or appropriate, to include inspection and testing of low voltage secondary equipment and facilities susceptible to stray voltage levels that exceed the thresholds described herein. Such plans and documents should include or consider:

#### **» Sources—**

Identify and include likely sources of equipment susceptible to stray voltage, including exposed cable leads, exposed metal conduit and risers, metallic street light poles, pad mounted devices, equipment enclosures, pedestals, and exposed grounds. At minimum, NCI recommend all utilities inspect and test the following equipment where accessible by the general public:

    Metallic street lights and fixtures

**Unitil Response: In 2006 Unitil to identify locations of all metallic street lights fixtures. Testing for stray voltage will be done on an annual basis beginning in 2007.**

    Metallic risers, sweeps and conduits

**Unitil Response: In 2006 Unitil to survey its distribution system to identify all secondary underground risers, sweeps and conduits. 5-year cycle inspections will begin in 2007, when equipment will be tested for stray voltage and the data will be recorded as described in the recommendations for a tracking system.**

    Manhole and hand hole covers

**Unitil Response: Unitil to incorporate stray voltage test of metallic manhole and hand hole covers with annual inspections.**

    Secondary pedestals

**Unitil Response: Continue with existing 5-year inspection program that inspects for damaged equipment.**

    Pad mount transformers and translosures

**Unitil Response: Unitil to incorporate stray voltage testing procedures into existing 5-year transformer inspection program. In the past, these inspections have not included the inspection of commercial pad mount transformers. The location of all commercial transformers in the Fitchburg distribution system would have to be identified in 2006 and the inspections would commence in 2007 with one-fifth of existing transformers being inspected each year thereafter.**

Pad mounted switchgear, termination cabinets and junction boxes

**Unitil Response: Unitil will incorporate voltage testing procedures into existing 5-year transformer inspection program.**

Control cabinets such as pole-mounted capacitor controls

**Unitil Response: Pole mounted capacitor controls are located approximately 10 feet above the ground and therefore out of the public's reach.**

Voltage testing of many of the above equipment categories often can be performed concurrently with other scheduled visual inspection or preventive maintenance programs

» **Schedules—**

Prioritize inspection schedules based on susceptibility or prior history of recorded stray voltage events by equipment type. NCI does not prescribe or recommend specific schedules or intervals that apply to all utilities. Utilities should be permitted to propose inspection schedules and methods based on prior inspection results, equipment exposure, coordination with other inspection and preventive maintenance programs, and locational factors. At minimum, NCI recommends utilities schedule voltage testing on a rolling 5-year basis. NCI recommends utilities prioritize voltage testing based on the following criteria, ranked from highest to lowest priority:

- Areas of high exposure from prior inspections should receive highest priority

**Unitil Response: Unitil is reviewing its current practice of annual manhole inspections, and will advise the Department if, at the end of this review, the company concludes that it would be reasonable to change the frequency or timing of such inspections. In the meantime, the annual inspections of manholes and associated equipment will continue.**

- Equipment with the highest historical incident rate or with the highest known risk factors

**Unitil Response: At this time Unitil does not have any recorded incidents**

- Equipment that is more susceptible to stray voltage during winter months when contamination or clearing increases the incident rate

**Unitil Response: See response to first bullet point, above.**

- Equipment categories listed above that have not been inspected or tested in the past 5 to 10 years or that have never been inspected

**Unitil Response: These will be included in either annual or 5-year cycle inspections as appropriate.**

- Areas with a high density of equipment types listed above, such as residential and commercial subdivisions

**Unitil Response: These areas will be included as part of the 5-year distribution equipment inspection program.**

- Rural areas where lines and equipment is located overhead and is generally inaccessible by the public may be assigned a lower priority.

**Unitil Response: To be included in 5-year cycle.**

» Seasonal factors –

Schedule inspections during periods where equipment may have greater susceptibility to stray voltage; for example, during winter months due to possible damage caused by clearing activities or lower ground resistance created by salt or contamination. Utilities should be provided an opportunity to gather factual information to identify seasonal impacts on equipment stray voltage susceptibility, and structure or modify programs based on this information. Utilities that propose such an approach should describe the methods they will employ to collect the factual information and how this information will be used to identify inspection schedules based on seasonal factors. Utilities should describe proposed methods in the implementation plan described later in this section.

» Mitigation and Remediation –

NCI recommends that utilities immediately repair, replace or disconnect equipment with voltage readings of 20 volts or greater. All equipment with readings between 8 and 20 volts should be repaired within 24 hours and equipment with readings below 8 volts should be addressed at the utility's discretion; however, utilities should cord on off the equipment or facilities with voltage between 8 and 20 volts if inspection personnel or repair crews are not present at the site at any time prior to repairs. Mitigation and remediation may include disconnection of service to a customer's premise if the source or cause of the stray voltage is customer-related or if the stray voltage is present on or caused by municipal or other publicly-owned facilities. However, utilities should employ best efforts to contact and provide the customer or municipality a reasonable opportunity to correct the problem prior to disconnection. The above threshold and communications protocol should be incorporated into each utility's preventive maintenance manuals, bulletins or notification procedures.

**Unitil Response: These recommendations for mitigation and remediation will be incorporated into the Unitil Distribution Inspection Bulletin.**

**Navigant Recommendation 2.**

Implement consistent monitoring and tracking systems that record and document stray voltage events. These reporting systems should include equipment impacted; system conditions, remediation, and other relevant information designed to enhance root cause analysis and targeted inspections. At a minimum, the monitoring and tracking systems should include the following attributes and features:

- Links to trouble order or customer information systems to ensure all stray voltage events are captured
- Menu-based data entry and definitions
- Established procedures to classify stray voltage events
- Procedures or policies that document equipment that should be tested seasonally when the incident rate is highest
- Event data including:
  - Location of event
  - Name of person reporting the event (if available)
  - Date and time event detected or reported
  - Feeder and substation number
  - Equipment impacted and damage report
  - Equipment owner (utility, municipality, customer)
  - Equipment condition
  - Voltage reading(s)
  - Inspection/testing / call out personnel / crews
  - Type of mitigation employed
  - Date of mitigation
  - Injuries (if any)
  - Date of report to DTE
- Tracking reports that list stray voltage events by equipment type, voltage readings, and location by area / region

Ideally, the monitoring and tracking system would include the ability to query data and produce interim reports via menu-based systems.

Utilities are encouraged to jointly discuss development and use of a common tracking and recording system.

**Unitil Response: To date, N STAR Electric, National Grid, Western Massachusetts Electric Company, and Unitil have had technical personnel teleconferencing in the development of plans to comply with Department's directives concerning these Recommendations. Technical personnel from each Company are in the process of establishing a Working Group to meet these objectives. Pursuant to this working group, the format for recording the data and the data base for tracking the data will be developed in 2006.**

### **Navigant Recommendation 3.**

Submit reports to the DTE that document and summarize information obtained in Recommendation 2. At a minimum, these reports should include:

- Annual reports that list inspection and testing data, including number of inspections conducted by equipment type
- Number of stray voltage events detected by inspection personnel versus calls-ins or notification by third parties
- Variance reports on current year inspection targets
- Stray voltage events detected on equipment that is not included in stray voltage equipment inspection schedules (which will enable the DTE to determine if the company is inspecting and testing the correct equipment)
- Number of exceptional or non-routine events that required reporting to OSHA or other government organizations due to injuries or other substantive impacts
- All exceptional and non-routine events described above should be submitted to the DTE within one to three days. Events involving a fatality or injury (human or domestic animal) should be reported immediately.

In addition to the above, utilities should consider reporting the following information:

- Clear and concise tables and charts that track the data listed in Recommendation 2
- Proposed schedules that summarize inspections scheduled for the following year
- Cost of inspections and mitigation activities
- Results of internal studies or industry activities involving stray voltage testing and detection methods, or stray voltage phenomena
- Results of investigation of new testing devices or methods, particularly those that offer cost-effective alternatives

Utilities should consider assigning individual(s) who are responsible for issuing these reports and responding to questions regarding the company's stray voltage program.

**Unitil Response: In collaboration with the utility working group, the format for these reports will be developed in 2006 for submissions commencing in 2007. As part of this process, Unitil will consider including the additional reporting requirements**

**Navigant Recommendation 4**

Monitor and assess alternate testing methods, including new equipment that will improve inspection efficiency and cost.

**Unitil Response: This will be an on-going endeavor**

**Navigant Recommendation 5**

Promote safety awareness via mail, bill stuffers and contractor bulletins to the extent these processes are not already in place.

**Unitil Response: Unitil will explore this recommendation and the appropriate avenue to provide this information to its customers and the general public.**

**Navigant Recommendation 6**

Explore and promote the development of protective equipment with electric equipment suppliers that can differentiate and isolate stray voltage from normal customer electrical loads

**Unitil Response: Unitil will work with suppliers and vendors to explore protective equipment that may lessen the likelihood of stray voltage.**